

Cancel claims 1-57

58. (New) A device for the acquisition of data obtained from optical codes, comprising:

an image detector for generating signals correlated to the brightness of at least one image, said image detector comprising a CMOS optical sensor having a plurality of pixels; and

a control unit for supplying at least one control signal for acquiring signals from said CMOS optical sensor according to a first configuration and at least one second configuration of pixels, said first configuration being suitable for acquiring a first type of optical code and said at least one second configuration being suitable for acquiring at least one second type of optical code different from the first type, and wherein said first and second configurations are different one from the other at least in one of a shape and a dimension of the respective pixels.

59. (New) A device according to claim 58, wherein, in said first configuration, each of said respective pixels has at least a first dimension and wherein, in said at least one second configuration, each of said respective pixels has at least a corresponding second dimension different from the first dimension.

60. (New) A device according to claim 59, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code, and wherein said first dimension is greater than said second dimension.

61. (New) A device according to claim 59, wherein in said first configuration, each of said respective pixels has a rectangular shape, and wherein said first dimension defines a vertical dimension of said rectangular shape and said vertical dimension is greater than a horizontal dimension orthogonal thereto.

62. (New) A device according to claim 61, wherein said first type of optical code is a linear code and said vertical dimension is at least ten times greater than said horizontal dimension.

63. (New) A device according to claim 58, wherein, in said first configuration, each of said respective pixels has a first shape and wherein, in said at least one second configuration, each of said respective pixels has at least a second shape different from the first shape.

64. (New) A device according to claim 63, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code, said first shape is rectangular and said second shape is substantially square.

65. (New) A device according to claim 63, wherein said first type of optical code is a linear code and said first shape is rectangular having a vertical dimension and a horizontal dimension orthogonal thereto, and wherein said vertical dimension is at least about ten times greater than said horizontal dimension.

66. (New) A device according to claim 58, wherein said CMOS optical sensor comprises a plurality of elementary pixels and said control unit supplies at least one control signal for grouping elementary pixels together into pixels such that each of said pixels comprises at least one elementary pixel and wherein, in said first configuration, each of said respective pixels comprises a first number of elementary pixels, and in said at least one second configuration, each of said respective pixels comprises a second number of elementary pixels different from the first number.

67. (New) A device according to claim 66, wherein, in said first configuration, each of said respective pixels has at least a first dimension and wherein,

in said at least one second configuration, each of said respective pixels has at least a corresponding second dimension different from the first dimension.

68. (New) A device according to claim 67, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code and said first dimension is greater than said second dimension.

69. (New) A device according to claim 66, wherein, in said first configuration, each of said respective pixels has a first shape and wherein, in said at least one second configuration, each of said respective pixels has at least one second shape different from the first shape.

70. (New) A device according to claim 69, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code, said first shape is rectangular and said second shape is substantially square.

71. (New) A device according to claim 58, wherein said CMOS optical sensor comprises a plurality of pixels each having a corresponding sensing area and said control unit is adapted to supply at least one control signal for modifying the sensing area of at least a portion of said plurality of pixels such that, in said first configuration, each of said respective pixels has a first sensing area, and in said at least one second configuration, each of said respective pixels has a second sensing area different from the first sensing area.

72. (New) A device according to claim 71, wherein, in said first configuration, each of said respective pixels has at least a first dimension and wherein, in said at least one second configuration, each of said respective pixels has at least a corresponding second dimension different from the first dimension.

73. (New) A device according to claim 72, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code and said first dimension is greater than said second dimension.

74. (New) A device according to claim 71, wherein, in said first configuration, each of said respective pixels has a first shape and wherein, in said at least one second configuration, each of said respective pixels has at least one second shape different from the first shape.

75. (New) A device according to claim 74, wherein said first type of optical code is a linear code, said second type of optical code is a stacked code, said first shape is rectangular and said second shape is substantially square.

76. (New) A device according to claim 58, wherein said control unit is comprised in said image detector.

77. (New) A device according to claim 58, wherein said second configuration is obtained by modifying at least one of shape and a dimension of the pixels defining said first configuration.

78. (New) A device according to claim 58, wherein said image detector further comprises an analog/digital conversion unit connected to said CMOS optical sensor for generating digital signals.

79. (New) A device according to claim 78, wherein said image detector further comprises an analog processing unit interposed between said CMOS optical sensor and said analog/digital conversion unit.

80. (New) A device according to claim 58, wherein said image detector has an output providing digital signals correlated to the brightness of said image, the device further comprising a data processing unit connected to said output of said image detector.

81. (New) A device according to claim 58, further comprising a data processing unit connected to said image detector, and wherein said data processing unit further comprises said control unit.

82. (New) A device for the acquisition of data obtained from optical codes, comprising:

means for generating signals correlated to the brightness of at least one image through a CMOS optical sensor comprising a plurality of pixels;

wherein said means for generating said signals comprises acquisition means for acquiring signals from said CMOS optical sensor according to a first configuration and at least one second configuration of pixels, said first configuration being suitable for acquiring a first type of optical code and said at least one second configuration being suitable for acquiring at least one second type of optical code different from the first type, and wherein said first and second configurations are different one from the other at least in one of shape and a dimension of the respective pixels.

83. (New) A device according to claim 82, wherein said CMOS optical sensor comprises a plurality of elementary pixels and said acquisition means comprises means for grouping elementary pixels together into pixels such that each of said pixels comprises at least one elementary pixel and wherein, in said first configuration each of said respective pixels comprises a first number of elementary pixels, and in said at least one second configuration, each of said respective pixels comprises a second number of elementary pixels different from the first number.

84. (New) A device according to claim 82, wherein said CMOS optical sensor comprises a plurality of pixels each having a corresponding sensing area and said acquisition means comprises means for modifying the sensing area of at least a portion of said plurality of pixels such that, in said first configuration, each of said respective pixels has a first sensing area, and in said at least one second configuration, each of said respective pixels has a second sensing area different from the first sensing area

85. (New) A device according to claim 82, wherein said second configuration is obtained by modifying at least one of a shape and/or a dimension of the pixels defining said first configuration.

86. (New) A method for the acquisition of data obtained from optical codes, comprising the step of:

a) acquiring at least one image through a CMOS optical sensor comprising a plurality of pixels,

wherein said step a) comprises a step b) of acquiring signals from said CMOS optical sensor according to a first configuration and at least one second configuration of pixels, said first configuration being suitable for acquiring a first type of optical code and said at least one second configuration being suitable for acquiring at least one second type of optical code different from the first type, and wherein said first and second configurations are different one from the other at least in one of shape and a dimension of the respective pixels.

87. (New) A method according to claim 86, wherein said CMOS optical sensor comprises a plurality of elementary pixels and wherein step b) comprises the step of:

grouping elementary pixels together into pixels such that each of said pixels comprises at least one elementary pixel and such that in said first configuration, each of said respective pixels comprises a first number of elementary pixels, and in said at least one

second configuration, each of said respective pixels comprises a second number of elementary pixels different from the first number.

88. (New) A method according to claim 86, wherein said CMOS optical sensor comprises a plurality of pixels each having a corresponding sensing area and wherein step b) comprises the step of:

modifying the sensing area of at least a portion of said plurality of pixels such that, in said first configuration, each of said respective pixels has a first sensing area, and in said at least one second configuration, each of said respective pixels has a second sensing area different from the first sensing area.

89. (New) A method according to claim 86, wherein step b) comprises the steps of:

b1) acquiring a first image by acquisition of signals from said CMOS optical sensor according to said first configuration of pixels;

b2) processing said image to extract optical coded data therefrom;

b3) attempting a reading of said extracted optical coded data;

b4) verifying whether the reading attempt of said step b3) has been successful;

b5) if the verification of said step b4) has a negative result, acquiring a second image by acquisition of signals from said CMOS optical sensor according to said at least one second configuration of pixels.

90. (New) A method according to claim 86, wherein said second configuration is obtained by modifying at least one of shape and a dimension of the pixels defining said first configuration.

91. (New) A device for the acquisition of data obtained from optical codes, said device being connectable to a data-processing unit, the device comprising:

an image detector adapted to acquire at least one image by acquisition of signals correlated to the brightness of said image, said image detector comprising a CMOS optical sensor having a plurality of pixels; and

a control unit for supplying at least one control signal adapted to acquire signals from said CMOS optical sensor according to a first configuration and at least one second configuration of pixels, said first and second configurations being different one from the other at least in one of shape and a dimension of the respective pixels,

wherein said data-processing unit is adapted to:

receive from said device a first image, acquired by said image detector by acquisition of signals from said CMOS optical sensor according to said first configuration of pixels,

process said first image to extract optical coded data therefrom, and

attempt a reading of said extracted optical coded data, and

wherein said control unit is adapted to supply at least one control signal for acquiring signals from said CMOS optical sensor according to said second configuration of pixels when said reading attempt is unsuccessful.

92. (New) A device according to claim 91, wherein, in said first configuration, each of said respective pixels has at least a first dimension and wherein, in said at least one second configuration, each of said respective pixels has at least a corresponding second dimension different from the first dimension.

93. (New) A device according to claim 92, wherein said first dimension is greater than said second dimension.

94. (New) A device according to claim 91, wherein said CMOS optical sensor comprises a plurality of elementary pixels and said control unit is adapted to supply at least one control signal for grouping elementary pixels together into pixels such that each of said pixels comprises at least one elementary pixel and wherein, in said first configuration, each of said respective pixels comprises a first number of elementary pixels, and in said at least one second configuration, each of said respective pixels comprises a second number of elementary pixels different from the first one.

95. (New) A device according to claim 91, wherein said CMOS-optical sensor comprises a plurality of pixels each having a corresponding sensing area and said control unit is adapted to supply at least one control signal for modifying the sensing area of at least a portion of said plurality of pixels such that, in said first configuration, each of said respective pixels has a first sensing area, and in said at least one second configuration, each of said respective pixels has a second sensing area different from the first sensing area.

96. (New) A device according to claim 91, wherein said second configuration is obtained by modifying at least one of shape and a dimension of the pixels defining said first configuration.

97. (New) A device according to claim 91, wherein said data-processing unit is contained in said device.

98. (New) A device according to claim 97, wherein said data-processing unit is connected to said image detector and said control unit is contained in said data-processing unit.

99. (New) A device according to claim 91, wherein said control unit is contained in said image detector.

100. (New) A device for the acquisition and processing of data obtained from optical codes, comprising:

acquisition means for acquiring at least one first image, through a CMOS optical sensor having a plurality of pixels, by acquisition of signals according to a first configuration of pixels,

means for processing said first image to extract optical coded data therefrom;
and

means for attempting a reading of said extracted optical coded data;

wherein, when said reading attempt is unsuccessful, said acquisition means is adapted to acquire at least one second image by acquisition of signals according to at least one second configuration of pixels,

wherein said first and second configurations are different one from the other at least in one of shape and a dimension of the respective pixels.

101 (New) A device according to claim 100, wherein said second configuration is obtained by modifying at least one of shape and a dimension of the pixels defining said first configuration.

102. (New) A method for the acquisition and processing of data obtained from optical codes, comprising the steps of:

a) acquiring a first image through a CMOS optical sensor comprising a plurality of pixels, said first image being acquired by acquisition of signals from said CMOS optical sensor according to a first configuration of pixels;

b) processing said image to extract optical coded data therefrom;

c) attempting a reading of said extracted optical coded data;
d) verifying whether the reading attempt of said step c) has been successful; and
e) if the verification of said step d) has a negative result, acquiring a second image by acquisition of signals from said CMOS optical sensor according to at least one second configuration of pixels,

wherein said second configuration is different from the first configuration in that, in said first configuration, each of said respective pixels has at least a first dimension and, in said at least one second configuration, each of said respective pixels has at least a corresponding first dimension different from the first dimension of the first configuration;

wherein, in at least one of said first and second configurations, each of said respective pixels has a rectangular shape, and wherein said first dimension defines a vertical dimension of said rectangular shape and said vertical dimension is greater than a horizontal dimension orthogonal thereto.

103. (New) A method according to claim 102, wherein said second configuration is obtained by modifying at least one of shape and a dimension of the pixels defining said first configuration.